

Sequence Listing.ST25  
SEQUENCE LISTING

<110> BENSON, Timothy  
PRINCE, Donald Bryan

<120> CRYSTALLIZATION AND STRUCTURE DETERMINATION OF FEMA AND FEMA-LIKE PROTEINS

<130> 00236.US1

<140> Unassigned

<141> 2001-08-17

<150> US 60/226,239

<151> 2000-08-17

<150> US 60/226,269

<151> 2000-08-17

<160> 3

<170> PatentIn version 3.0

<210> 1

<211> 414

<212> PRT

<213> Staphylococcus aureus

<400> 1

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Lys | Phe | Ser | Thr | Leu | Ser | Glu | Glu | Glu | Phe | Thr | Asn | Tyr | Thr | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | His | Phe | Lys | His | Tyr | Thr | Gln | Ser | Ile | Glu | Leu | Tyr | Asn | Tyr | Arg |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Lys | Ile | Asn | His | Glu | Ala | His | Ile | Val | Gly | Val | Lys | Asn | Asp | Lys |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Glu | Val | Ile | Ala | Ala | Cys | Leu | Leu | Thr | Glu | Ala | Arg | Ile | Phe | Lys |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Tyr | Lys | Tyr | Phe | Tyr | Ser | His | Arg | Gly | Pro | Leu | Leu | Asp | Tyr | Phe |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Ala | Lys | Leu | Val | Cys | Tyr | Phe | Phe | Lys | Glu | Leu | Ser | Lys | Phe | Ile |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Lys | Asn | Arg | Gly | Val | Phe | Ile | Leu | Val | Asp | Pro | Tyr | Leu | Ile | Glu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |

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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Leu | Arg | Asp | Ala | Asn | Gly | Arg | Ile | Ile | Lys | Asn | Tyr | Asn | Asn | Ser | 115 | 120 | 125 |
| Val | Ile | Val | Lys | Met | Leu | Gly | Lys | Ile | Gly | Tyr | Leu | His | Gln | Gly | Tyr | 130 | 135 | 140 |
| Thr | Thr | Gly | Tyr | Ser | Asn | Lys | Ser | Gln | Ile | Arg | Trp | Ile | Ser | Val | Leu | 145 | 150 | 155 |
| Asp | Leu | Lys | Asp | Lys | Asp | Glu | Asn | Gln | Leu | Leu | Lys | Glu | Met | Glu | Tyr | 165 | 170 | 175 |
| Gln | Thr | Arg | Arg | Asn | Ile | Lys | Lys | Thr | Ile | Glu | Ile | Gly | Val | Lys | Val | 180 | 185 | 190 |
| Glu | Asp | Leu | Ser | Ile | Glu | Glu | Thr | Asn | Arg | Phe | Tyr | Lys | Leu | Phe | Gln | 195 | 200 | 205 |
| Met | Ala | Glu | Glu | Lys | His | Gly | Phe | His | Phe | Met | Asn | Glu | Asp | Tyr | Phe | 210 | 215 | 220 |
| Lys | Arg | Met | Gln | Glu | Ile | Tyr | Lys | Asp | Lys | Ala | Met | Leu | Lys | Ile | Ala | 225 | 230 | 235 |
| Cys | Ile | Asn | Leu | Asn | Glu | Tyr | Gln | Asp | Lys | Leu | Lys | Ile | Gln | Leu | Leu | 245 | 250 | 255 |
| Lys | Ile | Glu | Asn | Glu | Met | Met | Thr | Val | Asn | Arg | Ala | Leu | Asn | Glu | Asn | 260 | 265 | 270 |
| Pro | Asn | Ser | Lys | Arg | Asn | Lys | Ser | Lys | Leu | Asn | Gln | Leu | Asn | Met | Gln | 275 | 280 | 285 |
| Leu | Ser | Ser | Ile | Asn | Asn | Arg | Ile | Ser | Lys | Thr | Glu | Glu | Leu | Ile | Leu | 290 | 295 | 300 |
| Glu | Asp | Gly | Pro | Val | Leu | Asp | Leu | Ala | Ala | Ala | Leu | Phe | Ile | Cys | Thr | 305 | 310 | 315 |
| Asp | Asp | Glu | Val | Tyr | Tyr | Leu | Ser | Ser | Gly | Ser | Asn | Pro | Lys | Tyr | Asn | 325 | 330 | 335 |
| Gln | Tyr | Met | Gly | Ala | Tyr | His | Leu | Gln | Trp | His | Met | Ile | Lys | Tyr | Ala | 340 | 345 | 350 |
| Lys | Ser | His | Asn | Ile | Asn | Arg | Tyr | Asn | Phe | Tyr | Gly | Ile | Thr | Gly | Val | 355 | 360 | 365 |
| Phe | Ser | Asn | Glu | Ala | Asp | Asp | Phe | Gly | Val | Gln | Gln | Phe | Lys | Lys | Gly | 370 | 375 | 380 |

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Phe Asn Ala His Val Glu Glu Leu Ile Gly Asp Phe Ile Lys Pro Val  
385 390 395 400

Arg Pro Ile Leu Tyr Lys Phe Ala Lys Leu Ile Tyr Lys Val  
405 410

<210> 2  
<211> 419  
<212> PRT  
<213> Staphylococcus aureus

<400> 2

Met Lys Phe Thr Glu Leu Thr Val Thr Glu Phe Asp Asn Phe Val Gln  
1 5 10 15

Asn Pro Ser Leu Glu Ser His Tyr Phe Gln Val Lys Glu Asn Ile Val  
20 25 30

Thr Arg Glu Asn Asp Gly Phe Glu Val Val Leu Leu Gly Ile Lys Asp  
35 40 45

Asp Asn Asn Lys Val Ile Ala Ala Ser Leu Phe Ser Lys Ile Pro Thr  
50 55 60

Met Gly Ser Tyr Val Tyr Tyr Ser Asn Arg Gly Pro Val Met Asp Phe  
65 70 75 80

Ser Asp Leu Gly Leu Val Asp Tyr Tyr Leu Lys Glu Leu Asp Lys Tyr  
85 90 95

Leu Gln Gln His Gln Cys Leu Tyr Val Lys Leu Asp Pro Tyr Trp Leu  
100 105 110

Tyr His Leu Tyr Asp Lys Asp Ile Val Pro Phe Glu Gly Arg Glu Lys  
115 120 125

Asn Asp Ala Leu Val Asn Leu Phe Lys Ser His Gly Tyr Glu His His  
130 135 140

Gly Phe Thr Thr Glu Tyr Asp Thr Ser Ser Gln Val Arg Trp Met Gly  
145 150 155 160

Val Leu Asn Leu Glu Gly Lys Thr Pro Glu Thr Leu Lys Lys Thr Phe  
165 170 175

Asp Ser Gln Arg Lys Arg Asn Ile Asn Lys Ala Ile Asn Tyr Gly Val  
180 185 190

Lys Val Arg Phe Leu Glu Arg Asp Glu Phe Asn Leu Phe Leu Asp Leu  
195 200 205

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Tyr Arg Glu Thr Glu Glu Arg Ala Gly Phe Val Ser Lys Thr Asp Asp  
210 215 220

Tyr Phe Tyr Asn Phe Ile Asp Thr Tyr Gly Asp Lys Val Leu Val Pro  
225 230 235 240

Leu Ala Tyr Ile Asp Leu Asp Glu Tyr Val Leu Lys Leu Gln Gln Glu  
245 250 255

Leu Asn Asp Lys Glu Asn Arg Arg Asp Gln Met Met Ala Lys Glu Asn  
260 265 270

Lys Ser Asp Lys Gln Met Lys Lys Ile Ala Glu Leu Asp Lys Gln Ile  
275 280 285

Asp His Asp Gln His Glu Leu Leu Asn Ala Ser Glu Leu Ser Lys Thr  
290 295 300

Asp Gly Pro Ile Leu Asn Leu Ala Ser Gly Val Tyr Phe Ala Asn Ala  
305 310 315 320

Tyr Glu Val Asn Tyr Phe Ser Gly Gly Ser Ser Glu Lys Tyr Asn Gln  
325 330 335

Phe Met Gly Pro Tyr Met Met His Trp Phe Met Ile Asn Tyr Cys Phe  
340 345 350

Asp Asn Gly Tyr Asp Arg Tyr Asn Phe Tyr Gly Leu Ser Gly Asp Phe  
355 360 365

Thr Glu Asn Ser Glu Asp Tyr Gly Val Tyr Arg Phe Lys Arg Gly Phe  
370 375 380

Asn Val Gln Ile Glu Glu Leu Ile Gly Asp Phe Tyr Lys Pro Ile His  
385 390 395 400

Lys Val Lys Tyr Trp Leu Phe Thr Thr Leu Asp Lys Leu Arg Lys Lys  
405 410 415

Leu Lys Lys

<210> 3  
<211> 421  
<212> PRT  
<213> Staphylococcus aureus

<400> 3

Met Glu Lys Met His Ile Thr Asn Gln Glu His Asp Ala Phe Val Lys

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| 1   | 5   | 10  | 15  |
|---|-----|-----|-----|
| Ser His Pro Asn Gly Asp Leu Leu Gln Leu Thr Lys Trp Ala Glu Thr | 20  | 25  | 30  |
| Lys Lys Leu Thr Gly Trp Tyr Ala Arg Arg Ile Ala Val Gly Arg Asp | 35  | 40  | 45  |
| Gly Glu Val Gln Gly Val Ala Gln Leu Leu Phe Lys Lys Val Pro Lys | 50  | 55  | 60  |
| Leu Pro Tyr Thr Leu Cys Tyr Ile Ser Arg Gly Phe Val Val Asp Tyr | 65  | 70  | 75  |
| Ser Asn Lys Glu Ala Leu Asn Ala Leu Leu Asp Ser Ala Lys Glu Ile | 85  | 90  | 95  |
| Ala Lys Ala Glu Lys Ala Tyr Ala Ile Lys Ile Asp Pro Asp Val Glu | 100 | 105 | 110 |
| Val Asp Lys Gly Thr Asp Ala Leu Gln Asn Leu Lys Ala Leu Gly Phe | 115 | 120 | 125 |
| Lys His Lys Gly Phe Lys Glu Gly Leu Ser Lys Asp Tyr Ile Gln Pro | 130 | 135 | 140 |
| Arg Met Thr Met Ile Thr Pro Ile Asp Lys Asn Asp Asp Glu Leu Leu | 145 | 150 | 155 |
| Asn Ser Phe Glu Arg Arg Asn Arg Ser Lys Val Arg Leu Ala Leu Lys | 165 | 170 | 175 |
| Arg Gly Thr Thr Val Glu Arg Ser Asp Arg Glu Gly Leu Lys Thr Phe | 180 | 185 | 190 |
| Ala Glu Leu Met Lys Ile Thr Gly Glu Arg Asp Gly Phe Leu Thr Arg | 195 | 200 | 205 |
| Asp Ile Ser Tyr Phe Glu Asn Ile Tyr Asp Ala Leu His Glu Asp Gly | 210 | 215 | 220 |
| Asp Ala Glu Leu Phe Leu Val Lys Leu Asp Pro Lys Glu Asn Ile Ala | 225 | 230 | 235 |
| Lys Val Asn Gln Glu Leu Asn Glu Leu His Ala Glu Ile Ala Lys Trp | 245 | 250 | 255 |
| Gln Gln Lys Met Glu Thr Ser Glu Lys Gln Ala Lys Lys Ala Gln Asn | 260 | 265 | 270 |
| Met Ile Asn Asp Ala Gln Asn Lys Ile Ala Lys Asn Glu Asp Leu Lys |     |     |     |

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275

280

285

Arg Asp Leu Glu Ala Leu Glu Lys Glu His Pro Glu Gly Ile Tyr Leu  
290 295 300

Ser Gly Ala Leu Leu Met Phe Ala Gly Ser Lys Ser Tyr Tyr Leu Tyr  
305 310 315 320

Gly Ala Ser Ser Asn Glu Phe Arg Asp Phe Leu Pro Asn His His Met  
325 330 335

Gln Tyr Thr Met Met Lys Tyr Ala Arg Glu His Gly Ala Thr Thr Tyr  
340 345 350

Asp Phe Gly Gly Thr Asp Asn Asp Pro Asp Lys Asp Ser Glu His Tyr  
355 360 365

Gly Leu Trp Ala Phe Lys Lys Val Trp Gly Thr Tyr Leu Ser Glu Lys  
370 375 380

Ile Gly Glu Phe Asp Tyr Ile Leu Asn Gln Pro Leu Tyr Gln Leu Ile  
385 390 395 400

Glu Gln Val Lys Pro Arg Leu Thr Lys Ala Lys Ile Lys Ile Ser Arg  
405 410 415

Lys Leu Lys Arg Lys  
420